

1. A tablet that rapidly disintegrates in the oral cavity comprising a compressed blend of:

rapidly dispersing microgranules prepared by granulating a sugar alcohol or a saccharide or a mixture thereof having an average particle size less than about 30 microns and a disintegrant, and

a taste-masked microcapsule containing at least one drug, the microcapsule being prepared by granulating a pharmaceutically acceptable formulation comprising at least one drug in a therapeutically effective amount and at least one polymeric binder that improves resilience of the microgranules, wet milling the granulated mass, and microencapsulating the milled granules to provide microcapsules.

2. The tablet of claim 1 prepared by a process comprising the steps of:

(a) granulating a pharmaceutically acceptable formulation comprising at least one drug in a therapeutically effective amount and at least one polymeric binder that improves resilience of the microgranules, and optionally a diluent(s) and a disintegrant, and

(b) wet milling the granulated mass using a size reduction mill to produce granules which resist breakage during coacervation for taste-masking and whose average particle size is not more than about 300 μm ,

(c) microencapsulating such microgranules to provide microcapsules with an average particle size of not more than about 400 μm ,

(d) separately granulating a sugar alcohol or a saccharide or a mixture thereof having an average particle size less than about 30 μm and a disintegrant to provide rapidly dispersing microgranules,

(e) blending the taste-masked microcapsules from step (c) and rapidly dispersing microgranules from step (d) optionally with additional pharmaceutical ingredients such as a flavoring agent, a coloring agent, a sweetener, and additional disintegrant,

(f) compressing the blend from step (e) to form a tablet.

3. The tablet of claim 1 which is produced by:

- (a) granulating a powder mixture into rapidly dispersing microgranules with a fixed particle diameter, the powder mixture comprising a sugar alcohol, a saccharide or a combination thereof, each of which having an average particle diameter of not more than 30 μm ;
- (b) granulating, wet milling and drying a pharmaceutically acceptable formulation comprising at least one pharmaceutically acceptable active(s) with an average particle size of not more than about 50 μm , at least one binder, which imparts resilient property to the microgranules, and optionally a diluent(s) and a disintegrant, said microgranule exhibiting not more than 15% fines (passing through 140 mesh screen) when tested in accordance with the procedure for friability test;
- (c) encapsulating the microgranules of the active by coacervation in cyclohexane comprising ethylcellulose of dry granules from step (b),
- (d) mixing the rapidly dispersing microgranules from step (a) and the microcapsules from step (c) and optionally other pharmaceutically acceptable ingredients such as a flavor(s), a sweetener, additional disintegrant; and compressing the mixture into a predetermined shape.

4. The tablet as set forth in claim 1 comprising a sugar alcohol, a saccharide or a combination thereof, each of which having an average particle size of not more than about 30 μm , in the amount of about 30–70% by weight of the tablet, a taste-masked active ingredient having an average particle diameter of not more than about 50 μm in the amount of about 0.01–30% by weight of the tablet, a disintegrant in the amount of about 1.0–10% by weight of the tablet, and optionally other pharmaceutically acceptable ingredients such as a flavor(s), a sweetener, said tablet being compressed into a predetermined shape.

5. The tablet of claim 4 wherein said rapidly dispersing microgranules comprises a sugar alcohol, the saccharide or the combination thereof, which is selected from the group consisting of D-mannitol, sorbitol, xylitol, maltitol, and lactose; and a disintegrant which is selected from the group consisting of croscopovidone, sodium starch glycolate, crosslinked carboxymethyl cellulose, and low substituted hydroxypropyl cellulose, each of which having an average particle diameter of not more than about 30 μm .

6. The tablet of claim 4 wherein said pharmaceutically acceptable active is selected from the group consisting of H₂ antagonists such as ranitidine, cimetidine, and famotidine, proton pump inhibitors such as omeprazole, and lansoprazole, H₅ agonists such as sumatriptan, zolmitriptan and zolmitriptan, a selective histamine H₁ receptor antagonist such as cetirizine, each of which having an average particle size of not more than about 50 µm.

7. The tablet of claim 6 wherein the disintegrant is selected from the group consisting of cross-linked polyvinylpyrrolidone (crospovidone), cross-linked carmellose of sodium, or low substituted hydroxypropylcellulose.

8. The tablet as set forth in claim 7 wherein the binder used for the granulation of the active is selected from the group consisting of polyvinylpyrrolidone (PVP), hydroxypropylcellulose (HPC), hydroxypropyl methylcellulose (HPMC) and modified starches.

9. The tablet as set forth in claim 8 wherein the sugar alcohol is D-mannitol.

10. The tablet as set forth in claim 9 wherein the saccharide is lactose.

11. The tablet as set forth in claim 6 wherein the pharmaceutically acceptable active is selected from the group consisting of H₂ antagonists/ proton pump inhibitors, such as ranitidine, cimetidine, famotidine, omeprazole, and lansoprazole, is ranitidine.

12. The tablet as set forth in claim 11 wherein the pharmaceutically acceptable active is sumatriptan.

13. The tablet as set forth in claim 12 wherein the disintegrant is crospovidone.

14. The tablet as set forth in claim 13 wherein said polymeric binder which improves resiliency is selected from the group consisting of polyvinylpyrrolidone (PVP), hydroxypropylcellulose (HPC), hydroxypropyl methylcellulose (HPMC) of viscosity of 100 cps or higher, Starch 1500 or Starch 1551.

15. The tablet as set forth in claim 1 wherein the disintegration time in the buccal cavity of the tablet is not more than 120 seconds.

16. A method for manufacturing a tablet that disintegrates in the oral cavity comprising the steps of:

(a) granulating a pharmaceutically acceptable formulation comprising at least one drug in a therapeutically effective amount and at least one polymeric binder that improves resilience of the microgranules, and optionally a diluent(s) and a disintegrant, and

(b) wet milling the granulated mass using a size reduction mill to produce granules which resist breakage during coacervation for taste-masking and whose average particle size is not more than 300 μm ,

(c) microencapsulating such microgranules to provide microcapsules with an average particle size of not more than 400 μm ,

(d) separately granulating a sugar alcohol or a saccharide or a mixture thereof having an average particle size less than 30 μm and a disintegrant to provide rapidly dispersing microgranules,

(e) blending the taste-masked microcapsules from step (c) and rapidly dispersing microgranules from step (d) optionally with additional pharmaceutical ingredients such as a flavoring agent, a coloring agent, a sweetener, and additional disintegrant,

(f) compressing the blend from step (e) to form a tablet.

17. The method of claim 16 wherein an intrabuccally rapidly disintegrating tablet is produced which comprises a sugar alcohol, a saccharide or a combination thereof, each of which having an average particle size of not more than about 30 μm , in the amount of about 30–70% by weight of the tablet, an active ingredient having an average particle diameter of not more than about 50 μm in the amount of about 0.01-30% by weight of the tablet, a disintegrant in the amount of about 1.0–10% by weight of the tablet, and optionally other pharmaceutically acceptable ingredients such as a favoring agent(s), coloring agents and a sweetener.

18. The method of claim 17 wherein the step of compressing includes compressing the mixture into a predetermined shape using a tablet press and pre-lubricating the dies and punches prior to tablet compression.

19. The method of claim 18 wherein the blend is internally lubricated prior to its compression on a tablet press.

20. The method of claim 17 wherein the sugar alcohol, the saccharide or the combination thereof, is selected from the group consisting of D-mannitol, sorbitol, xylitol, maltitol, and lactose and the disintegrant is selected from the group consisting of crospovidone, sodium starch glycolate, crosslinked carboxymethyl cellulose, and low substituted hydroxypropyl cellulose, each of which having an average particle diameter of not more than about 30 μ m.

21. The method of claim 20 wherein the pharmaceutically acceptable active is selected from the group consisting of H₂ antagonists such as ranitidine, cimetidine, and famotidine, proton pump inhibitors such as omeprazole, and lansoprazole, 5-HT₁ receptor agonists such as sumatriptan, rizatriptan and zolmitriptan, each of which having an average particle size of not more than 50 μ m is granulated with one or more diluents and at least one polymeric binder which imparts resilient property to the microgranules of desired particle size suitable for microencapsulation by coacervation, produced by wet milling and drying.

22. The method of claim 21 wherein the disintegrant is selected from the group consisting of cross-linked polyvinylpyrrolidone (crospovidone), cross-linked carmellose of sodium, or low substituted hydroxypropyl cellulose.

23. The method of claim 22 wherein said polymeric binder used for the granulation of the active is selected from the group consisting of polyvinylpyrrolidone (PVP), hydroxypropylcellulose (HPC), hydroxypropyl methylcellulose (HPMC) of viscosity of 100 cps or higher, and modified starches.

24. The method of claim 23 wherein the tablet disintegrates within 60 seconds in the buccal cavity, the sugar is D-mannitol having an average particle size of not more than about 30 μ m, the disintegrant is crospovidone, the active ingredient is ranitidine or sumatriptan having an average particle size of not more than about 50 μ m, and the polymeric binder is HPMC with a viscosity of 100 cps or higher, Starch 1551 or Starch 1500.